

**AMENDMENT**

In the Claims:

Please amend claims 1 and 6 as per attached with this Response and Amendment. Attachment A is a marked-up copy of the claim amendments, while Attachment B is a clean copy of the amended claims.

**REMARKS**

Upon entry of this amendment, claims 1-10 are pending in the application. Claim 1 is an independent claim drawn to a method for cooling a seal located in a wall of a chamber, with claims 2-5 depending therefrom, while claim 6 is an independent claim drawn to an apparatus for cooling a seal, with claims 7-10 depending therefrom. Support for the amendments to the claims may be found in the specification as originally filed, in particular in Figs. 1 and 6 and the description thereof. Therefore, Applicants submit that the amendments to the claims do not add new matter within the meaning of 35 U.S.C. §132 due to being supported by the specification as originally filed. The claim amendments have been made in the anticipation that they will place the application in condition for allowance.

Claims 1-10 stand rejected as being anticipated by Zimron et

al. Based on the above claim amendments and comments that follow, Applicant respectfully submits that the claims are now in condition for allowance.

**Rejection of Claims 1-10 Under 35 U.S.C. 102(b)**

Claims 1-10 stand rejected under 35 U.S.C. 102(b) as being anticipated by Zimron et al. (U.S. Patent No. 5,743,094) for the reasons set forth in the previous Office Action.

**RESPONSE**

Applicant respectfully traverses this rejection and respectfully requests reconsideration and withdrawal thereof.

To establish an anticipation rejection, every claimed element must be found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 814 F2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); See also, MPEP § 2131. Applicant respectfully submits that the Examiner has not met this burden.

As amended, claim 1 is drawn to a method for cooling a seal located in a wall of a chamber and through which a movable shaft passes, the seal being heated by hot pressurized vapor that leaks through a labyrinth into the chamber and internal friction. The

method comprises the steps of: providing a chamber in which the seal is located and into which the hot pressurized vapor leaks; injecting cool liquid into the chamber in which the seal is located; and cooling and condensing the hot pressurized vapor in the chamber, thus cooling the seal and reducing the pressure in the chamber. The method further comprises **supplying condensate from the chamber to a vessel for collecting the condensate and supplying the collected condensate from the vessel to an exit of a condenser.**

Likewise, as amended herein, claim 6 is drawn to an apparatus for cooling a seal located in a wall of a chamber and through which a movable shaft passes. The seal is heated by hot pressurized vapor that leaks through the seal into the chamber and internal friction. The apparatus comprises a chamber in which the seal is located and into which leaks the hot pressurized vapor and means for injecting liquid into the chamber in which the seal is located such that the hot pressurized vapor is cooled and condenses in the chamber, thereby cooling the seal.

The remaining claims depend from either claim 1 or claim 6 and, therefore, contain all of the limitations found in the independent claims.

Thus, in order for Zimron et al. to anticipate claims 1 and 6

(and the claims that depend therefrom), Zimron et al. must disclose all of the limitations set forth above. Applicants respectfully submit that Zimron et al. fail to do so, and therefore do not anticipate the claims.

Zimron et al. disclose a method of and apparatus for cooling a seal for machinery. The apparatus contains a seal heated by hot pressurized vapor and cooled by providing a chamber in which the seal is located and for containing vapor that leaks thereinto. The pressure in the chamber is reduced by connecting it to a source of low pressure; and liquid is supplied to the chamber at a pressure above the reduced pressure of the chamber and at a temperature below the temperature of vapor leaking into the chamber. The liquid is introduced into the chamber as droplets for contacting vapor that leaks thereinto, thereby cooling the vapor and thus cooling the seal. The flow rate of the liquid is adjustable in accordance with the temperature of the liquid in the chamber.

However, Zimron et al. **fail to disclose** the limitations found in the independent claims directed toward supplying the condensate from the chamber into a vessel and then supplying the collected condensate from the vessel to an exit of a condenser. Likewise, Zimron et al. fail to disclose the apparatus equivalent of these method limitations.

The differences between the claimed invention and the prior art are readily apparent when analyzing the Zimron et al. patent. In particular, Zimron et al. disclose (col. 4, lines 25-37) that:

Pressurized condensate at the temperature substantially of the condenser is supplied via connection 52 to spray head nozzles 54 that open to the interior of chamber 32, and relatively cold liquid working fluid is sprayed onto cylindrical shield 56 further converting the liquid into fine droplets that form a mist inside chamber 32. This mist interacts with hot vapor leakage B thereby cooling this hot vapor by means of direct contact heat transfer of heat in the vapor to liquid contained in the droplets and partial evaporation of the liquid in the droplets and thus forming a mixture of working fluid that flows into sump 32' from which the mixture is vented and drained by connection 50 into the condenser.

As can be seen, Zimron et al. disclose that the mixture is **vented and drained by connection 50 into the condenser**, not a vessel, as is required by the presently claimed invention. Thus, Applicants respectfully submit that Zimron et al. fail to disclose the condensation of the hot pressurized vapor **in the chamber** and feeding of the condensate into a vessel, as is claimed in the present independent claims (and also the dependent claims). Since Zimron et al. fail to disclose the condensation of the hot pressurized vapor in the chamber, Zimron et al. fail to teach each of the claimed limitations, and therefore do not anticipate the claims

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-10 as being anticipated by Zimron et al.

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**CONCLUSION**

In view of the foregoing, applicants respectfully request the Examiner to reconsider and withdraw the all pending rejections, and to allow all of the claims pending in this application.

If the Examiner has any questions or comments regarding this matter, he is welcomed to contact the undersigned attorney at the below-listed number and address.

Respectfully submitted,  
**NATH & ASSOCIATES**

Date:

June 24, 2002

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In re Application of:

Ohad ZIMRON et al.

Serial No.: 10/083,666

Group Art Unit: 3748

Filed: February 27, 2002

Examiner: H. Nguyen

For: **METHOD OF AND APPARATUS FOR COOLING A SEAL FOR MACHINERY**

**ATTACHMENT A - MARKED-UP COPY OF CLAIM AMENDMENTS**

Please amend claim 1 and 6 as follows:

1. (Amended) A method for cooling a seal located in a wall of a chamber and through which a movable shaft passes, said seal being heated by hot pressurized vapor that leaks through a labyrinth into the chamber and internal friction, said method comprising the steps of: (a) providing a chamber in which the seal is located and into which said hot pressurized vapor leaks; (b) injecting cool liquid into the chamber in which the seal is located; [and] (c) cooling and condensing said hot pressurized vapor in said chamber thus cooling the seal and reducing the pressure in the chamber; (d) supplying condensate from said chamber to a vessel for collecting said condensate; and (e) supplying the collected condensate from said vessel to an exit of a condenser.

6. (Amended) Apparatus for cooling a seal located in a wall of a chamber and through which a movable shaft passes, said seal being heated by hot pressurized vapor that leaks through the seal into the chamber and internal friction, said apparatus comprising: (a) a chamber in which the seal is located and into which leaks the hot pressurized vapor; [and] (b) means for injecting liquid into the chamber in which the seal is located such that the hot pressurized vapor is cooled and condenses in said chamber, thus cooling the seal; (c) a line that supplies condensate from said chamber to a vessel for collecting said

condensate; and (d) a pump that supplies the collected condensate from said vessel to an exit of a condenser.